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ABSTRACT

Career development services from exploration to specialization in a school-based context can be enhanced greatly through a partial or intensive technological delivery system. Specialization contains both awareness and exploration, as well as concentration within it. Awareness and exploration for specialization with concentration refines career choices to pursue. Early specialization could consist of concentrations of developmentally appropriate learning units within career cluster ranges. Advanced specialization could consist of concentrations in roles within a career cluster range. It should include analysis of competencies and skills required by companies for domestic and international commerce in electronic formats. Knowledge management at the postsecondary education level and articulation with secondary specializations are the next steps. Creating a conceptual framework for organizing knowledge management content requires collaborative strategic thinking. The content could be organized into knowledge management core competencies and requirements; economy sector "learning units"; and specializations with concentrations. (Relevant Web sites, newsletters, and bulletin board pages are described.) (YLB)

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CAREER EXPLORATION THROUGH SPECIALIZATION WITH CONCENTRATIONS IN BUSINESS PLUS FOCUS ON KNOWLEDGE MANAGEMENT (KM) AND IMPLICATIONS FOR EDUCATION

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SECONDARY - POSTSECONDARY LEVELS

2001-2002

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FROM ADVANCED EXPLORATION TO SPECIALIZATION OPTIONS

Career development services between exploration to specialization in a school-based context can be enhanced greatly through a partial technological or intensive technological delivery system. Figure 1 is a model for enhancing equality of opportunity and quality of career development services. CIOs and KMs would assist counseling services and in curriculum development.

Career Development: Exploration to Specialization

Chief Information Officer (CIO) and Knowledge Manager (KM) in Education/Training

	Accessing Information	Analyzing Information	Redistributing Information	Critiquing/Using Knowledge
	Career Counseling Services		Curriculum Development Programs	
Grade in "School"	Assessment, Counseling Guidance, Placement	Discipline Subject Centered Traditional Context English Social Studies Arts Math Nat. Sciences Tech		
11-12	Advanced Specialization			
9-10	Early Specialization			
6-8	Advanced Exploration			

Figure 1. Career Development from Advanced Exploration through Specialization

Specialization contains both awareness and exploration as well as concentration within it. Specialization should not mean an early selection of a career to only pursue developmentally appropriate learning units in a "planned mode" thereafter. Awareness and exploration could result in narrowing the broad range of selection of roles in business, engineering, law, medicine and health, services, etc. Awareness in business could lead to exploration in economy sectors such as agriculture, manufacturing, and the diverse array of service sector establishments.

Awareness and exploration for specialization with concentration refines career choices to pursue. A child could have been fascinated when Ananova appeared, analyzed integration of technology, and decided to explore "business" opportunities and "engineering" an Ananova for the school. Imagine children and youth reading the release of Ananova in April, 2000:

> She has green hair, a thin smile and heralds a different way to get the Net – via voice. Ananova, the first virtual newscaster, debuted on the Web, attracting a lot of media and user interest. Ananova reads news, generating human sounding speech from text. Eventually Ananova will be able to listen and interact with her audience...."

"What were Ananova's famous first words?" the teacher asked followed by "What are the technologies that make Ananova work?" and "Who are the closest lookalikes?" Browsing and mining could be guided by CIOs and KMs in a region (Groff, W., Strategic Planning, June 2000). Imagine children developing a "business plan" to design and to use their Ananova in schools.

FROM EARLY TO ADVANCED SPECIALIZATION WITH CONCENTRATION(s)

Early Specialization could consist of concentrations of developmentally appropriate learning units within career cluster ranges. Business activities range from functions such as market analysis as used by corporations identified earlier in this document through a chain of manufacturers and distribution of products through retailers and wholesellers, plus customer relations management. All business processes in each category of establishments are faced with conversions from paper-based to electronic formats. Hence, B2B, B2C, and M-commerce activities could be available. Enterprise based career development systems are focused primarily on meeting training needs. AMP had over 500 employee training programs for Central and South America in a distance learning format in the mid 1990s. How could such programs be modified for school-based use?

Advanced Specialization could consist of concentrations in roles within a career cluster range. Engineering activities are in biomedical, civil, computer, electronic, environmental, industrial, materials science, mechanical, and other fields of concentration. Biometric, card, voice, wireless, and other technologies are invented by engineers. Applications of these technologies are designed and developed by engineers. An analysis of articles by learners at this level is most appropriate. Analysis could include articles such as the following by DeVoney and Hakala (Dec. 11, 2000). "Consider the market for biometric authentication devices – which allow users to sign on to secure networks using a fingerprint, an iris scan and so on. Dramatic price reductions are making the technology affordable, and heightened concerns over security and privacy have customers taking a close look at biometric devices. Moreover, government regulations soon may make biometrics virtually mandatory for health-care, financial and e-commerce applications."

Advanced specialization should include analysis of competencies and skills required by companies for domestic and international commerce in electronic formats - B2B, B2C, M-commerce, eCRM. Figure 2 is a conceptual framework for early and advanced specializations plus concentrations.

Career Development: Specialization and Business Concentrations
Chief Information Officer (CIO) and Knowledge Manager (KM) in Education/Training

	Accessing Information	Analyzing Information	Redistributing Information	Critiquing/Using Knowledge
Career Counseling Services		Curriculum Development Programs		

Early Specialization	Advanced Specialization	Concentrations
Business	CIOs and KMs in Businesses	KM in a Business
Market Analysis (MA)	MA in Asia Pacific, Trend Analysis	MA in North Korea
Manufacturing Chains		
Distribution – Logistics	Air, Land, and Sea (ALS) to Asia	ALS to Inchon
Retail, Resellor		
Services	Financial, Government, Health Care	Health Informatics (HI)
Wholesale		
Customer Relations Mg		eCRM in Health Care

Figure 2. A Conceptual Framework for Advanced Specialization and Business Concentrations

KNOWLEDGE MANAGEMENT (KM) AT POSTSECONDARY EDUCATION LEVEL AND ARTICULATION WITH SECONDARY SPECIALIZATIONS

"The most important, and indeed the unique, contribution of management in the 20th century was the fifty-fold increase in the productivity of the manual worker in manufacturing. The most important contribution management needs to make in the 21st century is similarly to increase the productivity of knowledge work and the knowledge worker." – Peter Drucker

Creating a conceptual framework for organizing Knowledge Management (KM) content requires collaborative strategic thinking. The content could be organized into (a) KM core competencies and requirements, (b) economy sector "learning units" and (c) specializations with concentrations.

A Conceptual Framework for Knowledge Management (KM) Content

	Core Requirements in Knowledge Management	Economy Sector Learning Units	Specializations and Concentrations
1st Term, Year 1			
	Intro to KM	EC and KM in Printing	
	Competencies of a KM	Multi-Language KM Web Sites	
2nd Term, Year 1			
1st Term, Year 2			
	CIOs Strategic Roles	CIOs in an Economy Sector	CIOs in Intnl Trade
2nd Term, Year 2			

Hugh McKeller, Executive Editor of KMWorld, used the quote by Peter Drucker to introduce the Buyers' Guide, fall 2001 edition. Learners can browse and mine the 1,000+ companies listed in the fall Buyer's Guide that are involved in the KM landscape at http://www.kmworld.com
After browsing companies in the Buyer's Guide, browse the KMWorld home page and click on the 100 companies that matter in KM as well as mine and mine KM ideas from leader Web sites. Also, they can access, browse and mine KMWorld White Papers: (a) Best Practices in Enterprise Content Management, (b) Best Practices in Enterprise Portals, (c) Best Practices in Enterprise Relationship Management, and (d) Best Practices in Enterprise Knowledge Management.
KM conferences, publications in electronic and paper formats, and Web sites provide information for all three above-mentioned categories. Economy sector conferences, publications, and Web sites will add clarity and specificity to above-mentioned categories "b" and "c."

Electronic Commerce World coordinates a program series, one of which is the annual ECWorld Conference each October. The ECWorld preliminary program with sessions and workshops is mailed with the August issue of the publication and the Buyer's Guide with the September issue. These publications are of great value and can be accessed at http://www.ecomworld.com.
Advisory committees comprised of CIO-KM practitioners representing all areas of specialization in business, education, engineering and focus groups for concentrations can contribute expertise.

Biometric, card, voice, wireless and other technologies are created in Research and Development (R&D) centers in private and public sectors and information is released in Electronic Newsletters. Applications of above-mentioned technologies are analyzed by organizations and publications with labs and released in cycles in ENs and in hard copy publications often timed to conferences. A Biometric Group organization provides analyses of biometric technology including keystroke-scan, facial-scan, retina-scan, iris-scan, voice-scan, finger-scan, signature-scan, and hand-scan.
http://www.biometricgroup.com/e/zephyr_charts.htm

Card Technology magazine published the 2002 Card Technology Buyer's Guide containing over 1,000 listings in 114 categories. In Jim Baker's "Dear Reader" opening statement, he comments: "The past year has seen the expanded use of smart cards in many countries around the world. The U.S. government began in earnest rolling out chip-based ID cards to thousands of its employees, while Malaysia launched the world's largest national identity document smart card program. Meanwhile, Tokyo's massive commuter rail operator, JR East, began introducing smart card-based tickets to millions of commuters. 2002 is likely to see more such programs."
The on-line version will constantly be updated. http://www.cardtechnology.com
Industry specific information could be considered for inclusion in a specialization, concentration, or KM certificate or degree program. ActionLine, the magazine of the Automotive Industry Action Group (AIAG), publishes a Member SourceBook. An AIAG Electronic Commerce Steering Committee has a active Collaborative Computing work group. http://www.aiag.org

e-Business Law Bulletin provides liability news for e-commerce and emerging technologies.
http://www.andrewspub.com http://www.andrewsonline.com
Law Technology News publishes a Buyer's Guide. http://wwwlawtechnews.com

A FEW IMPLICATIONS FOR EDUCATION

Articulated Career Development programs must be synchronized and upgraded to meet current and future workplace needs. Analysis of global and regional business processes by functional area and application of technology trends is critical. Awareness raising of education service providers is essential as is the need of awareness raising of business leaders of the complexities in education. Business leaders and education service providers must co-create CD paradigms in school-based traditional paradigms. Also, business leaders using online delivery strategies should contribute e-training process know-how as well as content knowledge that can be released for public use.

NEWSLETTERS AND BULLETIN BOARD PAGES

Access http://www.blackboard.com/courses/webcom/ and enter as a guest. Click on "Announcements," on "Course Documents" and then on "Warren Groff's Newsletters." Also, click on "External Links" and "The Friendly Forum" and browse "The Friendly Forum: Class Discussion." Browse Asia Society, Globalization and the Family of IT Careers, Taiwan, Korea, etc. Access a few of the links. Consider requesting one the Asia Society Electronic Newsletters. Analyze competencies and skills from some of the "Family of IT Careers" links. Review the educational goals for the Ministry of Education (MOE) in Taiwan and then critique "The Pacific Century" (105+) and "Pacific Rim Partnerships" in App. B3 (ED 372 239, 1994).